# IN THE CLAIMS

Please amend the claims as follows. Any additional difference between the previous state of the claims and the claims below is unintentional and in the nature of a typographical error.

1. (Cancelled).

2. (Previously Presented) The method of Claim 7, wherein identifying the model parameters further comprises:

selecting at least one of the one or more pole candidates and selecting at least one of the one or more model candidates as the model parameters.

3. (Previously Presented) The method of Claim 7, wherein:

the upper triangular matrix has a plurality of values along one of the diagonals of the upper triangular matrix, each value being greater than or equal to zero.

4. (Cancelled).

5. (Previously Presented) The method of Claim 7, wherein:

the diagonals divide the upper triangular matrix into upper, lower, left, and right sections; and

the one or more first defined areas in the upper triangular matrix are located in the right section of the upper triangular matrix.

6. (Cancelled).

7. (Currently Amended) A method, comprising:

electronically receiving a projection associated with a first signal and a second signal, the second signal comprising a first portion associated with the first signal and a second portion not associated with the first signal, the projection comprising an upper triangular matrix, the projection at least partially isolating the first portion of the second signal from the second portion of the second signal;

electronically identifying model parameters using at least a portion of the projection; and

electronically generating and storing a model associated with the model parameters, the model associating the first signal and the first portion of the second signal;

wherein identifying the model parameters comprises:

identifying one or more pole candidates using one or more first defined areas in the upper triangular matrix, the model parameters comprising at least one of the one or more pole candidates; and

identifying one or more model candidates using one or more second defined areas in the upper triangular matrix, the model parameters comprising at least one of the one or more model candidates; and

wherein each of the one or more second defined areas represents a backward column Hankel matrix centered along one of multiple diagonals of the upper triangular matrix, and wherein identifying the one or more model candidates comprises rewriting each backward column Hankel matrix as a forward column Hankel matrix.

8. (Cancelled).

9. (Previously Presented) The method of Claim 7, wherein:

identifying the model parameters comprises identifying one or more model parameters for each of multiple first defined areas in the upper triangular matrix.

10. (Previously Presented) The method of Claim 9, wherein:

the one or more model parameters associated with different first defined areas in the upper triangular matrix are different; and

identifying the model parameters further comprises selecting the one or more model parameters associated with a specific one of the first defined areas in the upper triangular matrix.

11. (Currently Amended) A method, comprising:

electronically receiving a projection associated with a first signal and a second signal, the second signal comprising a first portion associated with the first signal and a second portion not associated with the first signal, the projection comprising a first upper triangular matrix, the projection at least partially isolating the first portion of the second signal from the second portion of the second signal;

electronically identifying one or more model parameters using at least a portion of the projection; and

electronically generating and storing a model associated with the one or more model parameters, the model associating the first signal and the first portion of the second signal;

wherein identifying the one or more model parameters comprises:

identifying one or more model parameters for each of multiple defined areas in the first upper triangular matrix; and

selecting the one or more model parameters associated with a specific one of the defined areas in the first upper triangular matrix; and

wherein selecting the one or more model parameters associated with the specific one of the defined areas in the first upper triangular matrix comprises:

for each defined area in the first upper triangular matrix, generating a matrix comprising a forward column Hankel matrix based on a prediction error, the prediction error associated with the one or more model parameters that are associated with that defined area;

for each generated matrix, performing canonical QR-decomposition on the matrix to form a second upper triangular matrix, each second upper triangular matrix having an upper

right portion denoted $R_{E3}$;

for each second upper triangular matrix, identifying a value for $\|R_{E3}\|_2^2$; and

selecting the one or more model parameters associated with the defined area having the second upper triangular matrix with a smallest value for $\|R_{E3}\|_2^2$.

12. (Cancelled).

13. (Previously Presented) The apparatus of Claim 17, wherein the at least one processor identifies the model parameters by:

selecting at least one of the one or more pole candidates and selecting at least one of the one or more model candidates as the model parameters.

14. (Previously Presented) The apparatus of Claim 17, wherein:

the upper triangular matrix has a plurality of values along one of the diagonals of the upper triangular matrix, each value being greater than or equal to zero.

15.-16. (Cancelled).

17. (Currently Amended) An apparatus, comprising:

at least one input receiving a first signal and a second signal, the second signal comprising a first portion associated with the first signal and a second portion not associated with the first signal; and

at least one processor:

generating a projection associated with the first and second signals and identifying model parameters using at least a portion of the projection, the projection comprising an upper triangular matrix <u>having two diagonals that divide the upper triangular matrix into four sections, a first of the diagonals starting at an upper left corner of the upper triangular matrix and traveling down and right in the upper triangular matrix, a second of the diagonals starting at a lower left corner of the upper triangular matrix and traveling up and right in the upper triangular matrix</u>, the projection at least partially isolating the first portion of the second signal from the second portion of the second signal; and

generating and storing a model associated with the model parameters, the model associating the first signal and the first portion of the second signal;

wherein the at least one processor identifies the model parameters by:

identifying one or more pole candidates using one or more first defined areas in the upper triangular matrix, the model parameters comprising at least one of the one or more pole candidates<u>, the one or more first defined areas located in a single one of the sections of the upper triangular matrix</u>; and

identifying one or more model candidates using one or more second defined areas in the upper triangular matrix, the model parameters comprising at least one of the one or more

model candidates; and

wherein each of the one or more second defined areas represents a matrix centered along one of multiple diagonals of the upper triangular matrix.

18. (Previously Presented) The apparatus of Claim 17, wherein:

the at least one processor identifies the model parameters by identifying one or more model parameters for each of multiple first defined areas in the upper triangular matrix.

19. (Previously Presented) An apparatus, comprising:

at least one input receiving a first signal and a second signal, the second signal comprising a first portion associated with the first signal and a second portion not associated with the first signal; and

at least one processor:

generating a projection associated with the first and second signals and identifying one or more model parameters using at least a portion of the projection, the projection comprising a first upper triangular matrix, the projection at least partially isolating the first portion of the second signal from the second portion of the second signal; and

generating and storing a model associated with the one or more model parameters, the model associating the first signal and the first portion of the second signal;

wherein the at least one processor identifies the one or more model parameters by:

identifying one or more model parameters for each of multiple defined areas in the first upper triangular matrix; and

selecting the one or more model parameters associated with a specific one of the defined areas in the first upper triangular matrix; and

wherein the at least one processor selects the one or more model parameters associated with the specific one of the defined areas in the first upper triangular matrix by:

for each defined area in the first upper triangular matrix, generating a matrix comprising a forward column Hankel matrix based on a prediction error, the prediction error associated with the one or more model parameters that are associated with that defined area;

for each generated matrix, performing canonical QR-decomposition on the matrix

to form a second upper triangular matrix, each second upper triangular matrix having an upper right portion denoted $R_{E3}$;

for each second upper triangular matrix, identifying a value for $\|R_{E3}\|_2^2$; and

selecting the one or more model parameters associated with the defined area having the second upper triangular matrix with a smallest value for $\|R_{E3}\|_2^2$.

20. (Cancelled).

21. (Previously Presented) The computer program of Claim 24, wherein the computer readable program code that identifies the model parameters comprises:

computer readable program code that selects at least one of the one or more pole candidates and that selects at least one of the one or more model candidates as the model parameters.

22. (Previously Presented) The computer program of Claim 24, wherein:

the upper triangular matrix has a plurality of values along one of the diagonals of the upper triangular matrix, each value being greater than or equal to zero.

23. (Cancelled).

24. (Currently Amended) A computer program embodied on a computer readable medium, the computer program comprising:

computer readable program code that receives a projection associated with a first signal and a second signal, the second signal comprising a first portion associated with the first signal and a second portion associated with at least one disturbance, the projection comprising an upper triangular matrix, the projection at least partially isolating the first portion of the second signal from the second portion of the second signal;

computer readable program code that identifies model parameters using at least a portion of the projection; and

computer readable program code that generates and stores a model associated with the model parameters, the model associating the first signal and the first portion of the second signal;

wherein the computer readable program code that identifies the model parameters comprises:

computer readable program code that identifies one or more pole candidates using one or more first defined areas in the upper triangular matrix, the model parameters comprising at least one of the one or more pole candidates; and

computer readable program code that identifies one or more model candidates using one or more second defined areas in the upper triangular matrix, the model parameters comprising at least one of the one or more model candidates; and

wherein each of the one or more second defined areas represents a <u>backward column Hankel</u> matrix centered along one of multiple diagonals of the upper triangular matrix<u>, and wherein the computer readable program code that identifies the one or more model candidates</u>

comprises computer readable program code that rewrites each backward column Hankel matrix as a forward column Hankel matrix.

25. (Previously Presented) The computer program of Claim 24, wherein:

the computer readable program code that identifies the one or more model parameters comprises computer readable program code that identifies one or more model parameters for each of multiple first defined areas in the upper triangular matrix.

26. (Previously Presented) The computer program of Claim 25, wherein:

the one or more model parameters associated with different first defined areas in the upper triangular matrix are different; and

the computer readable program code that identifies the model parameters further comprises computer readable program code that selects the one or more model parameters associated with a specific one of the first defined areas in the upper triangular matrix.

27. (Previously Presented) A computer program embodied on a computer readable medium, the computer program comprising:

computer readable program code that receives a projection associated with a first signal and a second signal, the second signal comprising a first portion associated with the first signal and a second portion associated with at least one disturbance, the projection comprising a first upper triangular matrix, the projection at least partially isolating the first portion of the second signal from the second portion of the second signal;

computer readable program code that identifies one or more model parameters using at least a portion of the projection; and

computer readable program code that generates and stores a model associated with the one or more model parameters, the model associating the first signal and the first portion of the second signal;

wherein the computer readable program code that identifies the one or more model parameters comprises:

computer readable program code that identifies one or more model parameters for each of multiple defined areas in the first upper triangular matrix; and

computer readable program code that selects the one or more model parameters associated with a specific one of the defined areas in the first upper triangular matrix; and

wherein the computer readable program code that selects the one or more model parameters associated with the specific one of the defined areas comprises:

computer readable program code that, for each defined area in the first upper triangular matrix, generates a matrix comprising a forward column Hankel matrix based on a

prediction error, the prediction error associated with the one or more model parameters that are associated with that defined area;

computer readable program code that, for each generated matrix, performs canonical QR-decomposition on the matrix to form a second upper triangular matrix, each second upper triangular matrix having an upper right portion denoted $R_{E3}$;

computer readable program code that, for each second upper triangular matrix, identifies a value for $\|R_{E3}\|_2^2$; and

computer readable program code that selects the one or more model parameters associated with the defined area having the second upper triangular matrix with a smallest value for $\|R_{E3}\|_2^2$.

28. (Previously Presented) The method of Claim 7, wherein the projection at least partially isolates the first portion of the second signal from the second portion of the second signal in an orthogonal space.

29. (Previously Presented) The apparatus of Claim 17, wherein the at least one processor uses the model parameters associated with the stored model to de-noise the second signal.

30. (Previously Presented) The method of Claim 7, wherein:

a first of the diagonals extends from an upper left corner to a lower right corner of the upper triangular matrix; and

a second of the diagonals extends from a lower left corner to an upper right corner of the upper triangular matrix.

31. (Previously Presented) The method of Claim 7, further comprising:

controlling at least a portion of a process using the model.

32. (Previously Presented) The apparatus of Claim 17, wherein:

each matrix centered along one of the diagonals of the upper triangular matrix comprises a backward column Hankel matrix; and

the at least one processor identifies the one or more model candidates by rewriting each backward column Hankel matrix as a forward column Hankel matrix.

33. (Cancelled).